introduction & **hp PC** product line overview

vectra xe310
vectra vl400
vectra vl410
e-pc c10/s10
e-pc 40

technical reference manual

hp business pcs

www.hp.com/go/vectrasupport

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About this Document

This technical reference and BIOS document for HP Business PCs contains summary information only. More detailed information on system hardware is available in the *Technical Reference Manual - HP Business PC Technology*.

HP Business PC Documentation

In general, the following documentation is available for HP Business PCs:

Technical Reference Manual

This *Technical Reference Manual* is a technical reference and BIOS document for personnel providing system level support. It is available in PDF format on the HP Vectra support web site (**www.hp.com/go/support**). It is presented in modular form to provide quick and easy access to technical information on the PC. It is made up of the following components:

- The *Introduction & HP Business PC Overview* (this document) provides a quick reference guide to the hardware components and BIOS used in the latest HP Business PCs. It also lists some of the available accessories.
- *HP Product Description*. Provides technical information specific to the HP Business PC concerned. This includes summary information on product hardware and detailed information on the BIOS. Read this manual to see which hardware components are in the PC.
- *HP Business PC Technology*. Provides an in-depth guide to the hardware in all of the featured HP PCs. Subjects covered include chipsets, processors, graphics controllers, hard disk drives and DVD drives.

Troubleshooting guide

The *Troubleshooting Guide*, available in PDF format on the HP Vectra support web site (**www.hp.com/go/support**) will help you:

- Troubleshoot your PC
- Fix complex problems
- Find out where to get more information.

Quick Start Card (some models only)

The *Quick Start* card provided with your PC will help you:

- Set up and begin using your computer for the first time
- Upgrade and replace the hard drive and memory in your computer. More information is available on the web at: **www.hp.com/go/e-pcsupport**.
- Find out where to get more information.

Quick User's Guide

The *Quick User's Guide* provided with your computer includes basic troubleshooting information, technical specifications, warranty and legal information.

Your computer's online information

Your computer contains online help information on the hard disk. It includes information on:

- What to do before contacting your support provider
- Getting fast access to the HP web.

Online User's Guide

This HTML-based guide is available on the HP support web site (**`www.hp.com/go/vectrasupport`** or **`www.hp.com/go/e-pcsupport`**). It has information about:

- Setting up your e-pc
- Setting up your hp accessory
- Upgrading your e-pc and software
- Troubleshooting
- Tips and tricks.

Information on the HP support web site

Refer to the HP support web site (**`www.hp.com/go/vectrasupport`** or **`www.hp.com/go/e-pcsupport`**) for a wide range of information, including:

- Downloadable documentation
- Service and support options
- The latest BIOS, drivers and utilities
- Answers to Frequently Asked Questions.

System recovery cd-roms

Used for a full system recovery or alternative OS installation. Includes instructions on how to recover your preloaded software including operating system, drivers and utilities.

Conventions

The following conventions are used throughout this manual to identify specific numeric elements:

- Hexadecimal numbers are identified by a lower case h.
  For example, 0FFFFFFFh or 32F5h
- Binary numbers and bit patterns are identified by a lower case b.
  For example, 1101b or 10011011b

Bibliography

Manual, datasheets and other information can be obtained at:

- *Technical Reference Manuals*
  www.hp.com/go/vectrasupport or **www.hp.com/go/e-pcsupport**
- *HP Service Handbook* Chapters at:
  www.hp.com/go/vectrasupport or **www.hp.com/go/e-pcsupport**.
- *HP Product Data Sheets*
  www.hp.com/desktops
- *HP PC Data Sheets*
  www.hp.com/desktops
- *Intel Chipsets*
  developer.intel.com
- *Intel Dynamic Video Memory Technology*
  www.developer.intel.com/business/products/chipsets/dvmt_white.pdf
- *Intel Celeron & Pentium III Processors*
  www.intel.com/design/celeron/datashts
  www.intel.com/design/pentiumIII/datashts
- *Analog Devices AD1885*
  www.analogdevices.com

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HP Business PC product line overview

This document provides a brief overview of the technical features and components of the following HP Business PCs:

- XE310 PC
- VL400 Desktop, Minitower and Small Form Factor PCs
- VL410 Desktop and Small Form Factor PCs
- e-pc.

HP Vectra XE310 PCs

Component	
Package Description	1 or 2 free front-access shelves (one if a CD-ROM, DVD-ROM or CD-RW is fitted). Up to 3 PCI accessory board slots (two if a LAN card is fitted).
	Width: 21cm (8.27in.) Height: 39cm (15.35in.) Depth: 38cm (14.96in.)
Processor	Intel Celeron 800/100 up to 1100/100 with 128KB L2 cache. Intel Pentium III 933/133, 1000/133 with 256KB L2 cache and 2 x 16KB L1 cache.
Operating System	Windows 98 SE
System Board:	
Chipset	Intel®i810E.
Integrated I/O	2 USB connectors, 1 serial ports,1 parallel port, 1 Midi port.
Integrated IDE	On ICH chip. 2 IDE Ports (Ultra DMA/66).
Graphics	Integrated Intel 810E graphics controller.
Integrated Audio	Intel 810E integrated audio + AC97 Cirrus Logic
LAN	HP 10/100 BT PCI Ethernet Adapter (on some models)
Mass storage	Hard disks: 20GB IDE, 40GB IDE Floppy drive: standard 1.44 MB 3.5"
	CD-ROM drive: 48X max IDE (in selected models). Also available as accessory (D9444A) CD-RW drive: 16x, 10x, 40x (in selected models). Also available as accessory (P1543A)
Main memory	Two SDRAM sockets using: 64MB, 128MB and 256MB 133MHz SDRAM. Maximum of 512MB.
Input devices	HP Standard Keyboard HP Scrolling Mouse
Power supply	Input Voltage: 100-127 V 4A, 200-240V 2A ac (voltage selection switch) Input Frequency: 50/60 Hz Maximum output power: 149W continuous
Rear connectors	Keyboard, mouse, VGA, parallel, 2 x serial, 2 x USB, LAN, 3 x audio
BIOS	Type: Phoenix BIOS, Version: JD.xx.xx Setup program: in English BIOS error messages: in English.

HP Vectra VL400 PCs

Component	Desktop	Minitower	Small Form Factor
Package Description	1 or 2 free front-access shelves (one if a CD-ROM, DVD-ROM or CD-RW is fitted). Up to 4 accessory board slots (3 PCI, 1 AGP). (2 ISA slot extension kit available as an accessory.)	2 or 3 Free Front-access shelves (two if a CD-ROM, DVD-ROM or CD-RW is fitted) Up to 4 accessory board slots (3 PCI, 1 AGP). (2 ISA slot extension kit available as an accessory.)	1 Slim free front-access shelf, or 1 slim CD-ROM or DVD-ROM may be fitted. Up to 3 PCI accessory board slots. (Alternatively, riser card with 1 PCI and 1 combo PCI-ISA is available as an accessory.)
	Width: 43.5cm (17.13in.) Height: 13.5cm (5.32in.) Depth: 43cm (16.93in.)	Width: 20.6cm (8.15in.) Height: 46.9cm (18.46in.) Depth: 45.5cm (17.9in.)	Width: 36.6cm (14.4in.) Height: 10.1cm (3.98in.) Depth: 40.7cm (16.14in.)
Processor	Intel Celeron 566/66, 633/66 with 128KB L2 cache. Intel Pentium III 667/133, 733/133, 800/133, 867/133, 933/133, 1000/133 with 256KB L2 cache and 2 x 16KB L1 cache.		
Operating System	Either Windows 2000 (with Windows NT4 SP6 as alternative on CD-ROM), or Windows 95 (with Windows 98 SE as alternative on CD-ROM).		
System Board:			
Chipset	Intel®i815.		
Integrated I/O	2 USB connectors, 2 serial ports and 1 parallel port.		
Integrated IDE	On ICH chip. 2 IDE Ports (Ultra DMA/66).		
Graphics	Integrated Intel 815 AGP graphics controller using 9-10MB of system memory (with 4 MB memory upgrade accessory, 8 MB system memory is used). Matrox®Millennium G450 Dual Head 4X AGP or PCI graphics controller with 16MB of video memory (graphics card, on some models only).		
Integrated Audio	CrystalClear™ CS4299 PCI Audio Codec '97 2.1		
Integrated LAN	3COM 3C390 Fast Etherlink 10/100 Base-TX		
Mass storage	Hard disks: 10GB IDE, 15GB IDE, 30GB IDE, 9.1GB SCSI Floppy drive: standard 1.44 MB 3.5"		
	CD-ROM drive: 48X max IDE (in selected models). Also available as accessory (D9444A) DVD drive: 8x, 40x (in selected models) Also available as accessory (D7521A) CD-RW drive: 4x, 4x, 24x. Also available as accessory (D9524A) ZIP drive: accessory D9446A.		
Main memory	Two SDRAM sockets using: 64MB, 128MB, 256MB and 512MB 133MHz SDRAM. Maximum of 512MB (only one 512MB module is supported).		
Expansion cards (available as accessories)	HP Matrox G450 AGP: accessory D7518A NVIDIA GeForce2MX graphic card: accessory P2289A HP Ultra II SCSI adapter card: accessory D9529A HP 10/100 3Com 3C905C-TX network interface card: accessory (single card) D7522B HP 10/100 Intel Pro/100+ management adapter: accessory (single card) D7506A HP 10/100BT PCI Ethernet Card: accessory D7508B.		
Input devices	HP Standard Keyboard HP Multimedia Keyboard: accessory C4742A HP Standard Mouse HP Scrolling Mouse: accessory C4736A		
Power supply	Input Voltage: 100-127 V 4A, 200-240V 2A ac (voltage selection switch) Input Frequency: 50/60 Hz Maximum output power: 120W continuous	Input Voltage: 100-127 V 6A, 200-240V 3A ac (voltage selection switch) Input Frequency: 50/60 Hz Maximum output power: 200W continuous	Input Voltage: 100-127 V 2500mA, 200-240V 1300mA ac (voltage selection switch). Input Frequency: 50/60 Hz Maximum output power: 100W continuous
Rear connectors	Keyboard, mouse, VGA, parallel, 2 x serial, 2 x USB, LAN, 3 x audio		
BIOS	Type: Phoenix BIOS, Version: IP.xx.xx Setup program: English only, BIOS error messages: Available in French, German, Italian, Spanish, Danish, Dutch, Finnish, Portuguese, Norwegian, Swedish, English.		

HP Vectra VL410 PCs

Component	Desktop	Small Form Factor
Package Description	1 or 2 free front-access shelves (one if a CD-ROM, DVD-ROM or CD-RW is fitted). Up to 4 accessory board slots (3 PCI, 1 AGP).	1 Slim free front-access shelf, or 1 slim CD-ROM or DVD-ROM may be fitted. Up to 3 PCI accessory board slots. (Alternatively, riser card with 1 PCI is available as an accessory.)
	Width: 43.5cm (17.13in.) Height: 13.5cm (5.32in.) Depth: 43cm (16.93in.)	Width: 36.6cm (14.4in.) Height: 10.1cm (3.98in.) Depth: 41.0cm (16.14in.)
Processor	Intel Celeron 766/66, 800/100, 850/100, 900 (possibly higher)/100 with 128KB cache.	
Operating System	Windows 2000 SP1 (with Windows NT4 SP6 available on CD-ROM as a downgrade option), Windows 98 SE, Windows NT4 SP6 or Windows XP.	
System Board:		
Chipset	Intel® i815E Step B.	
Integrated I/O	4 USB connectors, 1 serial port, 1 optional serial port and 1 parallel port.	
Integrated IDE	On ICH2 chip. 2 IDE Ports (Ultra DMA/100).	
Graphics	Integrated Intel 815 AGP graphics controller using 10-11MB of system memory with 4MB GPA memory upgrade (7-13MB of system memory is used without memory upgrade) Add-on AGP Nvidia GeForce2 MX 32MB SGRAM (on some models only).	
Integrated Audio	Analog Devices AD1885 integrated AC'97 audio solution.	
Integrated LAN	Intel LAN (ICH2) on board.	
Mass storage	Hard disks: 20GB IDE (5400 rpm), 40GB IDE (7200 rpm) Floppy drive: standard 1.44 MB 3.5".	
	CD-ROM drive: 48X max IDE (in selected models). Also available as accessory (D9444A) DVD drive: 16x, 40x (in selected models) Also available as accessory (P1544A) Optional CD-RW drive: 16x, 10x, 40x: accessory (P1543A) Optional ZIP drive (250MB): accessory P1983A.	
Main memory	Two DIMM sockets using: 64MB, 128MB and 256MB 133MHz SDRAM. Maximum of 512MB (2 x 256MB).	
Expansion cards (available as accessories)	NVIDIA GeForce2MX graphic card: accessory P2289A	
	HP 10/100 3Com 3C905C-TX network interface card: accessory (single card) D7522B HP 10/100 Intel Pro/100+ management adapter: accessory (single card) D7506A HP 10/100BT PCI Ethernet Card: accessory D7508B.	
Input devices	HP Standard Keyboard HP Cordless Keyboard and Mouse kit HP PS2 Windows Keyboard: accessory C4735B HP USB Enhanced Internet Keyboard HP Standard Mouse HP PS2 Scrolling Mouse: accessory C4736B HP USB Optical Scrolling Mouse	
Power supply	Input Voltage: 100-127 V 4A, 200-240V 2A ac (voltage selection switch) Input Frequency: 50/60 Hz Maximum output power: 120W continuous	Input Voltage: 100-127 V 2500mA, 200-240V 1300mA ac (voltage selection switch) Input Frequency: 50/60 Hz Maximum output power: 114W continuous
Rear connectors	Keyboard, mouse, VGA, parallel, 1 x serial, 4 x USB, LAN, 3 x audio	
BIOS	Type: Phoenix BIOS, Version: IV.xx.xx.NN where NN is the language, BIOS error messages: Available in French, German, Italian, Spanish, Danish, Dutch, Finnish, Portuguese, Norwegian, Swedish, English.	

HP e-pcs

Component	HP e-pc 40	HP e-pc c10/s10
Package Description	No Free access shelves	
	Width: 9.5cm (3.7in); Height: 25.0cm (9.8in); Depth: 28.0cm (11.0in).	Width: 8.9cm (3.5 in); Height: 24.0 cm (9.4 in); Depth: 27.2 cm (10.7 in).
Processor	Intel Celeron 900MHz and above, with 128K cache	Intel Celeron 500/66, 533/66, 633/66, 700/66 Intel Pentium III 600EB/133, 667/133, 800/133, 866/133
System Board:		
Chip set	Intel® 815E (with B stepping to support higher frequency Celeron processors)	Intel® 810E
Integrated I/O	On ICH2 chip. 4 USB connectors, 1 serial port and 1 parallel port, 2 PS/2 (keyboard, mouse), 1 15-pin VGA connector, audio ports (stereo-in, stereo-out, microphone in)	On ICH chip. 2 USB connectors, 1 serial port and 1 parallel port, 2 PS/2 (keyboard, mouse), 1 15-pin VGA connector, audio ports (stereo-in, stereo-out, microphone in)
Integrated IDE	On ICH2 chip. 2 IDE Ports (Ultra ATA 100)	On ICH chip. 2 IDE Ports (Ultra ATA 66)
Integrated Graphics	Intel® 815E integrated graphics with Direct AGP and Dynamic Video Memory Technology. Uses main system memory rather than dedicated graphics memory.	Intel® 810E integrated graphics with Direct AGP and Dynamic Video Memory Technology.
Integrated Audio	16-bit Audio Codec '97 ADI 1885 Codec	CS4299: CrystalClear™ Sound Fusion Audio Codec '97
Integrated LAN	10/100 Mbps Intel Pro/100 VE	3COM 10/100 Mbps 3C905C-TX Network Interface (RJ-45 Ethernet port (10/100Base-T)
Mass storage	Hard disks: 20GB 5400rpm IDE Ultra ATA100 (7200rpm if requested) CD-ROM drive: 24X Max-speed slim CD-ROM (in selected models) CD-RW drive: external USB CD-R/W available as accessory C4505A USB Floppy drive: external USB floppy drive available as accessory D9510A	Hard disks: 8.4GB IDE, 10GB IDE, 20GB IDE CD-ROM drive: 24X Max-speed slim CD-ROM (in selected models) DVD drive: 8x Max-speed (in selected models) CD-RW drive: Available as accessory C4505A USB Floppy drive: Available as accessory D9510A
Main memory	Two SDRAM sockets for 133MHz, non-ECC 64MB, 128MB, 256MB memory modules. Maximum 512MB (two 256MB modules).	One SDRAM socket using: 64MB, 128MB, 256MB
Input devices	HP Standard keyboard or USB Internet keyboard on selected models HP Scrolling Mouse or USB Optical Scrolling mouse on selected models	HP Standard Keyboard HP Scrolling Mouse
Power supply	External 110W max. power supply 100-240V, 50/60Hz, auto-ranging	External 60W max. power supply
BIOS	Type: AmiBIOS Version: IW.xx.yy Setup program: English only BIOS error messages: English only	Type: AmiBIOS Version: IN.xx.yy Setup program: English only BIOS error messages: English only

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